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(54) Device for plugging the interior of a pipe

(57) An apparatus for plugging the interior of a pipe (10) that is penetrated by an axis opening (12) including an upright tubular plugger housing (20) attachable at its lower end to have communication with the interior of the pipe (10) through the opening (12). An elongated vertical cylindrical control bar (28) is provided with a plugger (30) at its lower end, the plugger (30) being positioned through the opening (12) into the interior of the pipe (10) to close against further flow of fluid through the pipe (10). A jack (26) is affixed to the plugger housing (20) upper end and telescopically receives the control bar (28), the jack (26) being pivotally affixed to the housing (20) so that the control bar (28), having a plugger (30) on the lower end thereof, can be pivoted relative to the housing (20) and thereby relative to the pipe (10) for proper positioning of the plugger (30) in the pipe (10). The jack (26) serving to axially downwardly or upwardly advance the control bar (28) so that a plugger (30) can be installed or removed from a pipe (10), the jack (26) providing force to expand a sealing cup on the plugging head to seal the inside of the pipe (10). A control bar clamp (38) and latch (126) are used for locking the plugger head (30) in the plugging position.

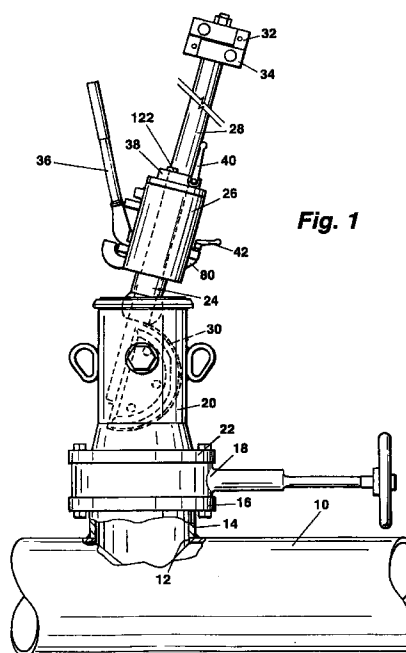


Fig. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 94 30 7213

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	GB 1 340 431 A (PASS & CO LTD) 12 December 1973	1	F16L55/105
Y	* the whole document *	2-4	F16L55/124
	---		F16L55/00
Y	US 4 202 377 A (HARRISON GEORGE W) 13 May 1980 * column 4, line 5 - column 4, line 49; figures 3,4 *	2-4	

A	US 3 025 885 A (VER NOOY) 20 March 1962 -----		
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			F16L
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 21 November 1996	Examiner Donnelly, C
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claims:
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet -B-

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respects of which search fees have been paid, namely claims:
- ☒ None of the further search fees has been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims,

namely claims: 1 - 4



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LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions, namely:

sheet B.

File no. 94307213.2

1. claims 1-4: A device for plugging a pipe comprising a plugger with an elastomeric cup mounted on a backing plate which is attached to a vertically oriented forked member by means of a roller/angled slot arrangement.
2. claims 5-16: An apparatus for plugging a pipe, comprising any suitable plugger which is manipulated by a control bar and jack arrangement.
3. claims 17-21: Apparatus for plugging a pipe comprising an arrangement of a collar and first and second closure plates with respective truncated spherical surfaces to allow swivelling of a control bar placed therethrough in order to position the plugger in the pipe.
4. claims 22-24: An apparatus for performing an operation in the interior of a pipe comprising a control bar formed of two concentric members each provided with manipulating means.